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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,630	04/16/2004	Francois Baccelli	017346-0181	7864

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FOLEY AND LARDNER LLP
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER	
MANOHARAN, MUTHUSWAMY GANAPATHY	
ART UNIT	**PAPER NUMBER**
2617	

DATE MAILED: 07/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/825,630	BACCELLI ET AL.	
	Examiner	Art Unit	
	Muthuswamy G. Manoharan	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andersin et al. (hereinafter Andersin) (IEE/ACM transaction on networking, Vol. 5, No. 2, 1997) in view of Rune (US 2004/0209624).

Regarding **claim 1**, Andersin teaches control device for a wireless ommunications network, comprising a calculator of quantities related to attenuations measured between mobiles and base stations (Page 257, Col. 1, lines 16-17), and/or to the signal to interference and noise ratio threshold, and a decision device with regard to the processing of new candidate mobiles (Page 257, Col. 1, line 43).

Andersin did not teach explicitly device operating conjointly with the calculator according to a predefined mechanism, characterized in that the said mechanism comprises: a load calculation function for each mobile, and an evaluation of a working condition, representing the feasibility of the servicing of mobiles.

However, Rune teaches in an analogous art, a device operating conjointly with the calculator according to a predefined mechanism, characterized in that the said

mechanism comprises for at least one given base station (**this is a special case where only one base station is considered and is a special case of Rune**): a load calculation function for each mobile served by the base station and for each new candidate mobile and an evaluation from the calculated loads of a working condition, representing the feasibility of the power allocation to mobiles by the base station (Paragraphs [0030], lines 1-11). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to have the device operating conjointly with the calculator according to a predefined mechanism, characterized in that the said mechanism comprises: a load calculation function for each mobile, and an evaluation of a working condition, representing the feasibility of the servicing of mobiles. This modification helps in estimating the contributions of the mobile to the uplink interference in the cells.

Also, Rune did not teach specifically a load function which is not depending on the transmit powers of said mobiles. However, Andersin, teaches how one can use the load function of Rune and apply averaging method based on some model probability distribution. The result will be independent of transmit powers of mobiles (section V, Paragraphs 1-3).

These types of approximations are well known in the academic world (since it is not easy to get data points required for the application, averaging technique based on a probability model is often used) to obtain quick and easy estimate or to get some explicit equation. The practical utility of this approach is often questionable since the results depend heavily on an assumed probability model rather than the real data.

Regarding **claim 2**, Andersin in view of Rune teaches all the particulars of the claim except device according to Claim 1, characterized in that the working condition relates to the summed load due to the mobiles served by a station in question. However, Rune teaches in an analogous art, device according to Claim 1, characterized in that the working condition relates to the summed load due to the mobiles served by a station in question (Paragraph [0035]). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to have the device according to Claim 1, characterized in that the working condition relates to the summed load due to the mobiles served by a station in question. This modification helps in estimating the contributions of the mobile to the uplink interference in the cells.

Regarding **claim 3**, Andersin in view of Rune teaches all the particulars of the claim except device according to Claim 1, characterized in that the load calculation function comprises, for a mobile, the summing of the inverses of the attenuations of the adjacent stations, the result being multiplied by an expression related to the threshold of the signal to interference and noise ratio, and, by the attenuation at the server station. However, Rune teaches in an analogous art, device according to Claim 1, characterized in that the load calculation function comprises, for a mobile, the summing of the inverses of the attenuations of the adjacent stations, the result being multiplied by an expression related to the threshold of the signal to interference and noise ratio, and, by the attenuation at the server station (Paragraph [0038]). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to have the device according to Claim 1, characterized in that the load calculation function comprises, for a mobile, the

summing of the inverses of the attenuations of the adjacent stations, the result being multiplied by an expression related to the threshold of the signal to interference and noise ratio, and, by the attenuation at the server station. This modification helps in controlling the number of users having access to the communication systems.

Regarding **claim 5**, Andersin further teaches the device according to Claim 1, characterized in that the calculator is provided with a function capable of evaluating a prior uplink budget condition (UBC), compared with a threshold budget value (UBC), and in that the mechanism used by the decision device first of all invokes the said function of evaluation of the prior condition, and rejects the candidate mobile if this condition is not satisfied (Page 259, Col. 1, equation 8).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Andersin et al. (hereinafter Andersin) (IEE/ACM transaction on networking, Vol. 5, No. 2, 1997) in view of Rune (US 2004/0209624) and further in view of Korhonen (Introduction to 3G communications, Nordwood: Artech House, 2001).

Regarding **claim 4**, Andersin teaches all the particulars of the claim, except, device according to Claim 1, characterized in that it comprises storage of a current value of the summed load, and in that the said mechanism operates incrementally by calculating the load of a candidate mobile, and updating the summed load, in order to determine whether the mobile is admitted or not, by comparing the summed load with a threshold. However, Korhonen teaches in an analogous art, device according to Claim 1, characterized in that it comprises storage of a current value of the summed load, and

in that the said mechanism operates incrementally by calculating the load of a candidate mobile, and updating the summed load, in order to determine whether the mobile is admitted or not, by comparing the summed load with a threshold (Page 278-279; Page 279, Equation 9.3). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to have the device according to Claim 1, characterized in that it comprises storage of a current value of the summed load, and in that the said mechanism operates incrementally by calculating the load of a candidate mobile, and updating the summed load, in order to determine whether the mobile is admitted or not, by comparing the summed load with a threshold. This modification prevents the network from getting overloaded.

Claims 6,7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andersin et al. (hereinafter Andersin) (IEE/ACM transaction on networking, Vol. 5, No. 2, 1997) in view of Rune (US 2004/0209624) and further in view of Kumaran et al (hereinafter Kumaran) (US 6775233).

Regarding **claim 6,** Andersin in view of Rune teaches all the particulars of the claim except the device according to Claim 5, characterized in that the prior condition comprises, for a mobile, the calculation of its maximum power, divided by an expression related to the threshold of the signal to interference and noise ratio, and by the attenuation at the server station. However, Kumaran teaches in an analogous art, device according to Claim 5, characterized in that the prior condition comprises, for a mobile, the calculation of its maximum power, divided by an expression related to the threshold of the signal to interference and noise ratio, and by the attenuation at the

server station (Col. 5, lines 5-25). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to have the device according to Claim 5, characterized in that the prior condition comprises, for a mobile, the calculation of its maximum power, divided by an expression related to the threshold of the signal to interference and noise ratio, and by the attenuation at the server station. This modification helps in expressing the power constraints in component form and also helps to achieve maximum system capacity.

Regarding **claim 7,** Andersin further teaches the device according to Claim 5, characterized in that the working condition comprises a threshold value, established in correspondence with the said threshold budget value (UBC) (Page 257, lines 40-43; Page 259, Col. 1, equation 8).

Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andersin et al. (hereinafter Andersin) (IEE/ACM transaction on networking, Vol. 5, No. 2, 1997) in view of Rune (US 2004/0209624) and further in view of Jain et al. (herinafter Jain) (US 2002/0193118).

Regarding **claim 8,** Andersin in view of Rune teaches all the particulars of the claim except device according to Claim 1, characterized in that it comprises a second mechanism capable of cooperating with the calculator in order to evaluate, for a given station, a non-congestion criterion, and a second decision device, capable of modifying the mobile rates in order to remain within the field of the congestion criterion. However, Jain teaches in an analogous art, device according to Claim 1, characterized in that it comprises a second mechanism capable of cooperating with the calculator in order to

evaluate, for a given station, a non-congestion criterion, and a second decision device, capable of modifying a mobile bit rate in order to remain within the field of the congestion criterion (Abstract, lines 1-8). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to have the device according to Claim 1, characterized in that it comprises a second mechanism capable of cooperating with the calculator in order to evaluate, for a given station, a non-congestion criterion, and a second decision device, capable of modifying the mobile rates in order to remain within the field of the congestion criterion. This modification increases the efficiency of a wireless system and reduces the probability of overloading or a fault.

Regarding **claim 9**, Andersin in view of Rune and further in view of Jain teaches all the particulars of the claim 8. Neither Andersin nor Jain specifically teaches the device according to claim 8, characterized in that it the second mechanism comprises , for each mobile, the calculation of an expression related to the load calculation function with these values, and then the calculation of the summed load due to the mobiles served by the station in question, this summed load being compared with a threshold. However, Rune teaches in an analogous art, the load calculation function with these values (Paragraph [0035], lines 1-4), and then the calculation of the summed load due to the mobiles served by the station in question, this summed load being compared with a threshold (Paragraph [0038], lines 1-5; Paragraph [0045], lines 4-7). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the load calculation function with these values, and then the calculation of the summed load due to the mobiles served by the station in question, this summed load being compared

with a threshold. This modification helps in estimating the contributions of the mobile to the uplink interference in the cells.

Regarding **claim 10**, Andersin in view of Rune and further in view of Jain teaches all the particulars of the claim 8. Andersin further teaches device according to claim 8, taken in combination with claim 5, characterized in that the second mechanism comprises, for each mobile, a calculation of its signal to interference and noise ratio threshold, and then the calculation of an expression related to this signal to interference and noise threshold, and next: the invocation of the function capable of evaluating the prior uplink budget condition (UBC), compared with a threshold budget value (UBC), the mobile concerned being rejected if this prior condition is not satisfied (Page 259, Col. 1, equation 8). Neither Andersin nor Jain teaches, for the mobiles not rejected, the invocation of the load calculation function with the aforementioned values, and then the calculation of the summed load due to the mobiles served by a station in question, this summed load being compared with a threshold related to the threshold budget. However, Rune teaches in an analogous art, wherein for the mobiles not rejected, the invocation of the load calculation function with the aforementioned values, and then the calculation of the summed load due to the mobiles served by a station in question, this summed load being compared with a threshold related to the threshold budget (Paragraph [0035], Equation 6; Paragraph [0045], lines 4-7). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to use the device, for the mobiles not rejected, the invocation of the load calculation function with the aforementioned values, and then the calculation of the summed load due to the mobiles

served by a station in question, this summed load being compared with a threshold related to the threshold budget. This modification is useful in preventing call drops and decrease in quality of service.

Claim 20 is rejected for the same reason as set forth in claim 10.

Claims 11-14 are rejected under 35 U.S.C. 102(e) as being unpatentable over Rune et al. (hereinafter Rune) (US 2004/0209624) in view of Andersin et al. (hereinafter Andersin) (IEE/ACM transaction on networking, Vol. 5, No. 2, 1997).

Regarding **claim 11**, Rune teaches control method for a wireless communications network comprising the steps of: a. calculating a load for each mobile served by the base station (**this is a special case where only one base station is considered and is a special case of Rune)** and for each new candidate mobile, from quantities related to attenuations measured between mobiles and base stations, and/or to the signal to interference and noise ratio threshold (Equation 6 on Page 3)
b. from the loads calculated at step a, evaluating a working condition, representing the feasibility of the service of mobiles by a station (Paragraph [0045], lines 4-5),
c. deciding on the treatment of new candidate mobiles from step b (Paragraph [0045], lines 5-6).

Also, Rune did not teach specifically a load function which is not depending on the transmit powers of said mobiles. However, Andersin, teaches how one can use the load function of Rune and apply averaging method based on some model probability distribution. The result will be independent of transmit powers of mobiles (section V, Paragraphs 1-3). Therefore, it would be obvious to one of ordinary skill in the art at the

time of invention to use the method wherein a load function which is not depending on the transmit powers of said mobiles is used for a quick and easy solution.

Regarding **claim 12**, Rune teaches method according to Claim 11, characterized in that the working condition of step b relates to the summed load due to the mobiles served by the (Paragraph [0038], Equation 9).

Regarding **claim 13,** Rune teaches method according to Claim 11, characterized in that step a comprises, for a mobile, summing the inverses of the attenuations of the adjoining stations, multiplying the result by an expression related to the signal to interference and noise signal ratio, and by the attenuation at the server station (Paragraph [0038], Equation 9).

Regarding **claim 14**, Rune teaches method according to Claim 11, characterized in that step b comprises storing a current value of the summed load and, during a new iteration of the method for a candidate mobile, step a comprises calculating the load of the candidate mobile, step b comprises updating the summed load and comparing the summed load with a threshold in order to determine whether or not the mobile is admitted at step c (Paragraph [0045], lines 4-7).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Rune (US 2004/0209624) and further in view of Andersin et al. (hereinafter Andersin) (IEE/ACM transaction on networking, Vol. 5, No. 2, 1997).

Regarding **claim 15,** Rune teaches all the particulars of the claim 11. Rune did not teach expressly the method according to claim 11, characterized in that the

calculator is provided with a function capable of evaluating a prior uplink budget condition (UBC), compared with a threshold budget value (UBC), and in that the mechanism used by the decision device first of all invokes the said function of evaluation of the prior condition, and rejects the candidate mobile if this condition is not satisfied. However, Andersin teaches in an analogous art, the device according to Claim 11, characterized in that the calculator is provided with a function capable of evaluating a prior uplink budget condition (UBC), compared with a threshold budget value (UBC), and in that the mechanism used by the decision device first of all invokes the said function of evaluation of the prior condition, and rejects the candidate mobile if this condition is not satisfied (Page 259, Col. 1, equation 8). This modification is basically a requirement to satisfy power constraints.

Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Rune (US 2004/0209624) Andersin et al. (hereinafter Andersin) (IEE/ACM transaction on networking, Vol. 5, No. 2, 1997) and further in view of Kumaran et al (hereinafter Kumaran) (US 6775233.

Regarding **claim 16**, Rune in view of Andersin teaches all the particulars of the claim except according to Claim 15, characterized in that the prior condition of step a comprises, for a mobile, the calculation of its maximum power, divided by an expression related to the signal to interference and noise ratio, and by the attenuation at the server station. However, Kumaran teaches in an analogous art, method according to Claim 15, characterized in that the prior condition of step a comprises, for a mobile, the calculation of its maximum power, divided by an expression related to the signal to interference and

noise ratio, and by the attenuation at the server station (Col. 5, lines 5-25). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to have the device according to Claim 15, characterized in that the prior condition of step a comprises, for a mobile, the calculation of its maximum power, divided by an expression related to the signal to interference and noise ratio, and by the attenuation at the server station. This modification helps in expressing the power constraints in component form and also helps to achieve maximum system capacity.

Regarding **claim 17**, Andersin further teaches the device according to Claim 15, characterized in that the working condition of step b comprises a threshold value, established in correspondence with the said threshold budget value (UBC) (Page 257, lines 40-43; Page 259, Col. 1, equation 8).

Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rune et al. (hereinafter Rune) (US 2004/0209624) in view of Jain et al. (hereinafter Jain) (US 2002/0193118).

Regarding **claim 18**, Rune teaches all the particulars of the claim except the method according to Claim 11, characterized in that steps a to c comprise evaluating, for a given station, a non-congestion criterion, and in that step c comprises modifying the mobile rates in order to remain within the congestion criterion field. However, Jain teaches in an analogous art, method according to Claim 11, characterized in that steps a to c comprise evaluating, for a given station, a non-congestion criterion, and in that step c comprises modifying the mobile rates in order to remain within the congestion criterion field (Abstract, lines 1-8). Therefore, it would be obvious to one of ordinary skill

in the art at the time of invention to have the method according to Claim 11, characterized in that steps a to c comprise evaluating, for a given station, a non-congestion criterion, and in that step c comprises modifying the mobile rates in order to remain within the congestion criterion field. This modification increases the efficiency of a wireless system and reduces the probability of overloading or a fault.

Regarding **claim 19,** Rune in view of Jain teaches all the particulars of the claim 18. Rune further teaches method according to Claim 18, characterized in that step a comprises, for each mobile, calculating its signal to interference and noise ratio threshold, and then calculating an expression related to this signal to interference and noise ratio threshold, and calculating the load on each mobile with this expression, and in that step b comprises calculating the summed load due to the mobiles served by a station in question and comparing this summed load with a threshold (Paragraph [0035], Equation 6; Paragraph [0045], lines 4-7).

Response to Arguments

Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Johnas Blom, and Fredrik Gunnarsson, "Power Control in Cellular Radio Systems", (http://WWW:control.isy.liu.se) teaches both centralized and non-centralized approaches.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Muthuswamy G. Manoharan whose telephone number is 571-272-5515. The examiner can normally be reached on 7:30AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on 571-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LESTER G. KINCAID
SUPERVISORY PRIMARY EXAMINER